

Application No.: 10/810,491

Docket No.: 20154/0201085-US0

REMARKSPending Claims

Claims 1 and 3-17 are pending. Claim 2 has been canceled previously.

Claim Rejection – 35 USC §102

Claims 1 and 3-17 have been rejected under 35 USC §102(e) as being anticipated by Tokuhara et al. (Tokuhara). Applicants respectfully submit that the claimed invention is not disclosed, taught, or suggested for at least the following reasons.

In the Office Action dated July 1, 2005 on pages 2-3, it is stated as follows:

Claims 1 and 3-9 are rejected under 35 USC 102(e) as being anticipated by Tokuhara et al.

Tokuhara et al. disclose a method of forming a sintered compact comprising: filing a die with a powder (col. 6, lines 26-64); compacting said powder with an upper die to form a green compact (col. 7, lines 7-30); conveying said green compact to a sintering plate (col. 7, lines 31-49); and placing the sintered plate in a sintering furnace and sintering the green compacts to form a sintered compact (col. 7, lines 63 to col. 8, lin 18).

Tokuhara et al. disclose that the green compacts are arranged in an array formation on the sintering plate, allowing for sintering to be performed in a directional manner i.e. sintering of the vertical sides of the green compacts would take place at an inherently different rate than [sic] the bottom of the green compacts.

The Examiner finds that the breadth of the limitations to "desired" and "predetermined", as determined as broadly as possible in light of the specification, allows for the inherent change in temperature across the body allowing for the body to form at a rate that meets "desired" and "predetermined" direction.

Applicants submit that a limitation in claim 1 has been neglected and not considered in the Office Action. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 314 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). A "predetermined direction" of the green compacts is, in fact, defined in claim 1, and the placement of the green compacts with respect to the predetermined direction at least distinguishes over the cited prior art.

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Claim 1 recites as follows:

Claim 1 (currently amended): A method for manufacturing a sintered object, comprising:
press-forming a raw material powder to obtain a green compact;
placing the green compact on a sintering plate; and
sintering the green compact,
where a difference between a shape and dimension of the green compact and a shape and dimension of a desired sintered object is gradually decreased in a predetermined direction; and
wherein the green compact is placed on the sintering plate so that the predetermined direction is oriented substantially toward an outer circumference of the sintering plate in plan view.

The bolded features above are not disclosed, taught, or suggested by the cited prior art, Tokuhara. That is, Tokuhara does not show press-forming a green compact such that a dimensional difference between the green compact and a desired sintered object (the object whose shape and dimension the green compact assumes after sintering) decreases along a predetermined direction, and placing this green compact on the sintering plate so that the predetermined direction is oriented substantially toward the outer circumference of the sintering plate in plan view. That is, the difference in the dimension between the green compact and the object is provided to decrease along a predetermined direction, which is oriented substantially toward the outer circumference of the sintering plate in plan view. As an example, see Fig. 4 where the objects are oriented in a predetermined direction toward the outer circumference of the sintering plate in plan view. The placement of the green compact in the predetermined direction as set forth in claim 1 provides for highly accurate sintering. The limitation as set forth in claim 1 has been ignored and not considered in the Office Action.

In Tokuhara, the green compact 24 of a rare earth alloy magnetic powder is made by pressing the powder within an air environment that has a temperature controlled at 30 °C or less and a relative humidity controlled at 65% or less (column 2, lines 59-63). Tokuhara does not disclose, teach, or suggest providing a green compact such that a dimensional difference between the green compact and a target object decreases along a predetermined direction, the direction being oriented substantially toward the outer circumference of the sintering plate in plan view. From Tokuhara's Figs. 1 and 2, it is clear that the green compacts 24 are loaded onto the

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sintering case 62 on a sintering tray 60 in a matrix configuration without any consideration to the orientation of the green compact itself. The green compacts 24 are simply loaded on to the sintering tray 60 and is carried to the sintering case 62. For at least this reason, Tokuhara does not anticipate claim 1.

In the Office Action, a statement is made that "Tokuhara et al. disclose that the green compacts are arranged in an array formation on the sintering plate, allowing for the sintering to be performed in a directional manner...." However, simply having an array of formation that may allow for the sintering to be performed in a direction manner clearly is not equal to a dimensional difference between the green compact and a target object decreases along a predetermined direction, the direction being oriented substantially toward the outer circumference of the sintering plate in plan view. How would a person of ordinary skill in the art been led to the invention as set forth in claim 1 by the cited prior art that does not disclose, teach, or suggest any particular orientation for the green compacts? Applicants respectfully submit that it could not. The cited prior art neither explicitly or inherently discloses the invention as set forth in claim 1.

Claim 3 recites:

Claim 3 (currently amended): The method for manufacturing a sintered object, comprising:

press-forming a raw material powder to obtain a green compact;
placing the green compact on a sintering plate; and
sintering the green compact,
wherein the green compact is press-formed so that the density of the green compact made of the raw material powder is gradually decreased in a predetermined direction, and
wherein the green compact is placed on the sintering plate so that the predetermined direction is oriented substantially toward an outer circumference of the sintering plate in plan view.

(Emphasis added.)

At least the above bolded feature of claim 3 is not disclosed, taught, or suggested by the cited prior art reference.

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As stated before, in Tokuhara, the green compact 24 of a rare earth alloy magnetic powder is made by pressing the powder within an air environment that has a temperature controlled at 30 °C or less and a relative humidity controlled at 65% or less. Tokuhara does not disclose, teach, or suggest press-forming a green compact to provide a decreasing density gradient of the green compact made of the raw powder in a predetermined direction that is oriented substantially toward the outer circumference of the sintering plate. For at least this limitation, claim 3 is not anticipated by Tokuhara. This limitation has also been completely ignored or neglected in the Office Action.

Dependent claim 4 to 9 and 14-17 are also not anticipated at least for the same reasons as claim 1 and claim 3.

Claim 10 recites as follows:

Claim 10 (currently amended): An apparatus for aligning a green compact, comprising:

a conveyance mechanism for holding, conveying, and aligning a green compact; a sintering plate on which the green compact is placed and aligned by the conveyance mechanism,

wherein the green compact is placed on the sintering plate so that a predetermined direction of the green compact is oriented substantially toward an outer circumference of the sintering plate in plan view.

The above bolded features are not disclosed, taught or suggested by the cited prior art reference. That is, Tokuhara does not disclose, teach, or suggest a conveyance mechanism that will place and align the green compact on the sintering plate such that the predetermined direction of the green compact is oriented substantially toward an outer circumference of the sintering plate, as set forth in claim 10. The alignment of the green compact is provided to take into account such factors as the non-uniform dimension or the density decrease of the green compact. Tokuhara simply places the green compacts 24 on a sintering plate in a matrix configuration and provides them to the sintering case 62. Tokuhara does not show a conveyance mechanism that places and aligns the green compact. At least for this reason, claim 10 is not anticipated by Tokuhara.

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Dependent claims 11-13 are not anticipated at least for the same reason as claim 10.

At least for the above reasons, all pending claims are believed to allowable over the cited prior art reference, Tokuhara. Allowance of the application is respectfully requested.

Summary

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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